
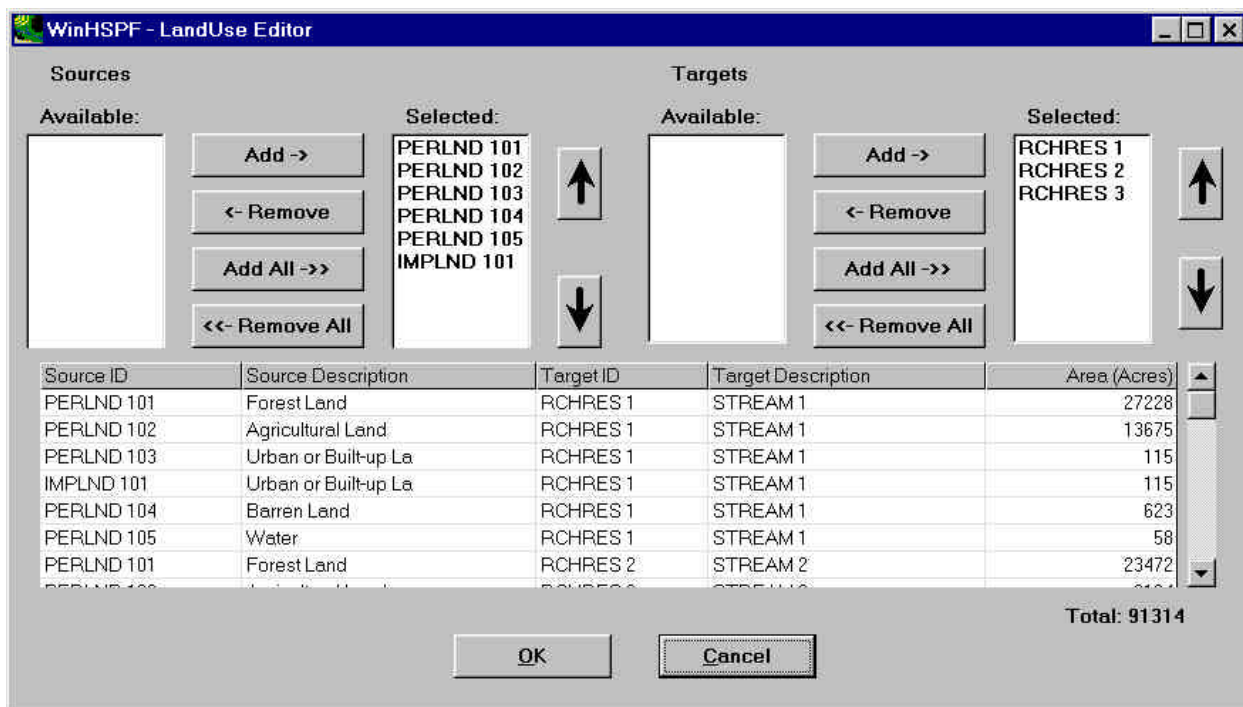


Land Use Editor

The Land Use Editor allows the user to edit the amount of each land use contributing to each reach.

Clicking the  button on the toolbar produces a window containing two list boxes, under which is a grid displaying area values connecting source operations to target operations. The grid contains five columns:

- SourceID - name of contributing source as recognized by HSPF
- Source Description - description of contributing source
- TargetID - name of target/reach as recognized by HSPF
- Target Description - description of target/reach
- Area - acreage of source contributing to target/reach



The screenshot shows the 'WinHSPF - LandUse Editor' window. It has two main sections: 'Sources' and 'Targets'. Each section has an 'Available:' list box, a 'Selected:' list box, and a set of buttons: 'Add ->', '<- Remove', 'Add All ->>', and '<<- Remove All'. In the 'Sources' section, the 'Selected' list contains: PERLND 101, PERLND 102, PERLND 103, PERLND 104, PERLND 105, and IMPLND 101. In the 'Targets' section, the 'Selected' list contains: RCHRES 1, RCHRES 2, and RCHRES 3. Below these lists is a grid with 5 columns: Source ID, Source Description, TargetID, Target Description, and Area (Acres). The grid shows data for the selected sources and targets. At the bottom right, it says 'Total: 91314'. At the bottom center are 'OK' and 'Cancel' buttons.

Source ID	Source Description	TargetID	Target Description	Area (Acres)
PERLND 101	Forest Land	RCHRES 1	STREAM 1	27228
PERLND 102	Agricultural Land	RCHRES 1	STREAM 1	13675
PERLND 103	Urban or Built-up La	RCHRES 1	STREAM 1	115
IMPLND 101	Urban or Built-up La	RCHRES 1	STREAM 1	115
PERLND 104	Barren Land	RCHRES 1	STREAM 1	623
PERLND 105	Water	RCHRES 1	STREAM 1	58
PERLND 101	Forest Land	RCHRES 2	STREAM 2	23472

The list box on the left represents the sources or land segments, and the list box on the right represents the targets or reaches. The grid contains a row for each selected land segment contributing to each selected reach. Reaches and land segments are represented in the grid if the name of the operation is in the **Selected** portion of the list box. Operations can be moved back and forth between the **Selected** and **Available** portions of the list, and the contents of the grid automatically will change accordingly.

Sources

Available: PERLND 102, PERLND 103, PERLND 104, PERLND 105, IMPLND 101

Selected: PERLND 101

Targets

Available:

Selected: RCHRES 1, RCHRES 2, RCHRES 3

Source ID	Source Description	Target ID	Target Description	Area (Acres)
PERLND 101	Forest Land	RCHRES 1	STREAM 1	27228
PERLND 101	Forest Land	RCHRES 2	STREAM 2	23472
PERLND 101	Forest Land	RCHRES 3	STREAM 3	16478

Total: 67178

OK Cancel

The area values may be edited, and text below the grid will indicate the original total area, the new total area, and the difference between these two. This information provides the user with some information that allows the user to feel confident that the change was interpreted as desired.

Sources

Available: PERLND 102, PERLND 103, PERLND 104, PERLND 105, IMPLND 101

Selected: PERLND 101

Targets

Available:

Selected: RCHRES 1, RCHRES 2, RCHRES 3


Source ID	Source Description	Target ID	Target Description	Area (Acres)
PERLND 101	Forest Land	RCHRES 1	STREAM 1	27220
PERLND 101	Forest Land	RCHRES 2	STREAM 2	23472
PERLND 101	Forest Land	RCHRES 3	STREAM 3	16478

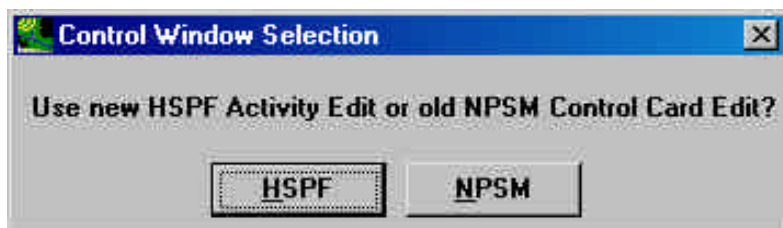
New Total: 67170
Original Total: 67178
Difference: -8.00

OK Cancel

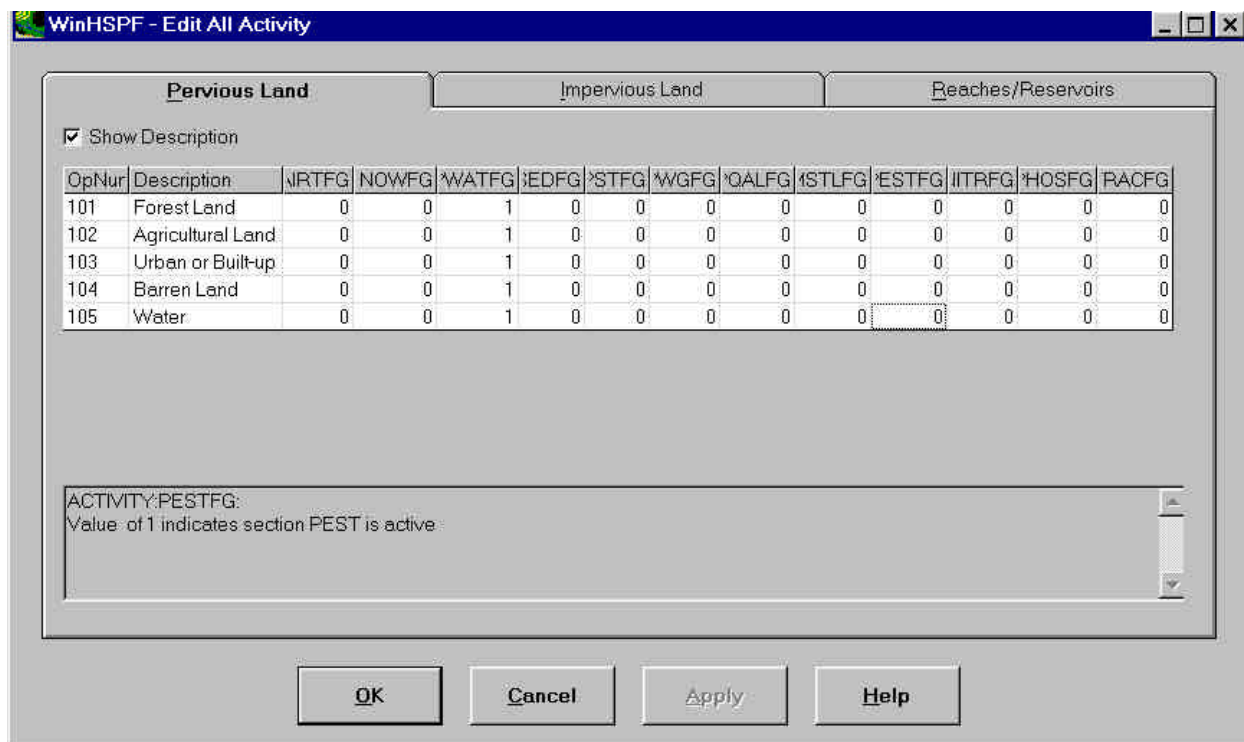
Once the values have been edited, the **OK** button may be clicked to save the changes and return to the main WinHSPF window. The **Cancel** button may be used to return to the main window without saving changes.

Control Cards

The Control Card Editor is accessed by choosing the **Control** option from the **Functions** menu or by clicking on the **Control Card** button  on the toolbar. The **Control Window Selection** window will appear, prompting the user to choose between the HSPF Activity Edit window or the old NPSM Control Card Editor. Both schemes are available so that the user may have a choice of means.



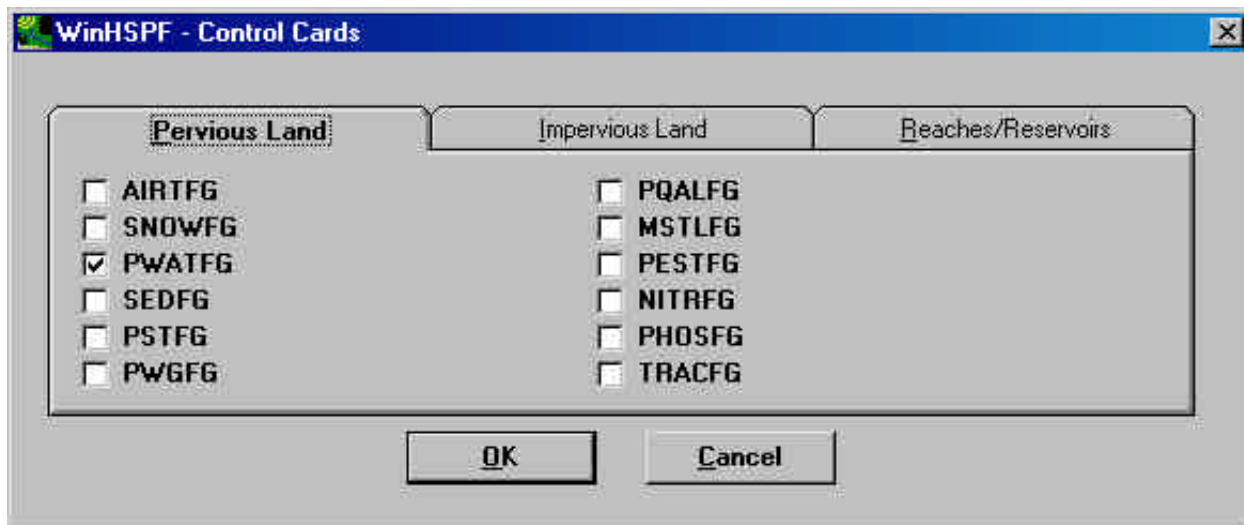
If the user chooses the **HSPF Activity** option, a window will be displayed containing a tab strip. On each of the three tabs are the Activity tables for the PERLND, IMPLND, and RCHRES blocks. Changes may be made to the entries in these tables, and then the user may click **OK** to exit and save the changes or **Cancel** to exit without saving the changes.



If the user chooses the **NPSM** option, a window will be displayed containing a tab strip, similar to the **HSPF Activity** edit window. The three tabs represent the PERLND, IMPLND, and RCHRES operations, but these tabs contain a series of check boxes. With this window the user may turn on or off a section for all operations of that type.


When the user turns a section on through this editor, other sections might turn on automatically. This section contains some operating rules that understand some sections to be prerequisite to running other sections. These operating rules are based on *BASINS Technical Note 3: the NPSM/HSPF Simulation Module Matrix*. Following these operating rules, all required and recommended prerequisite sections are turned on.

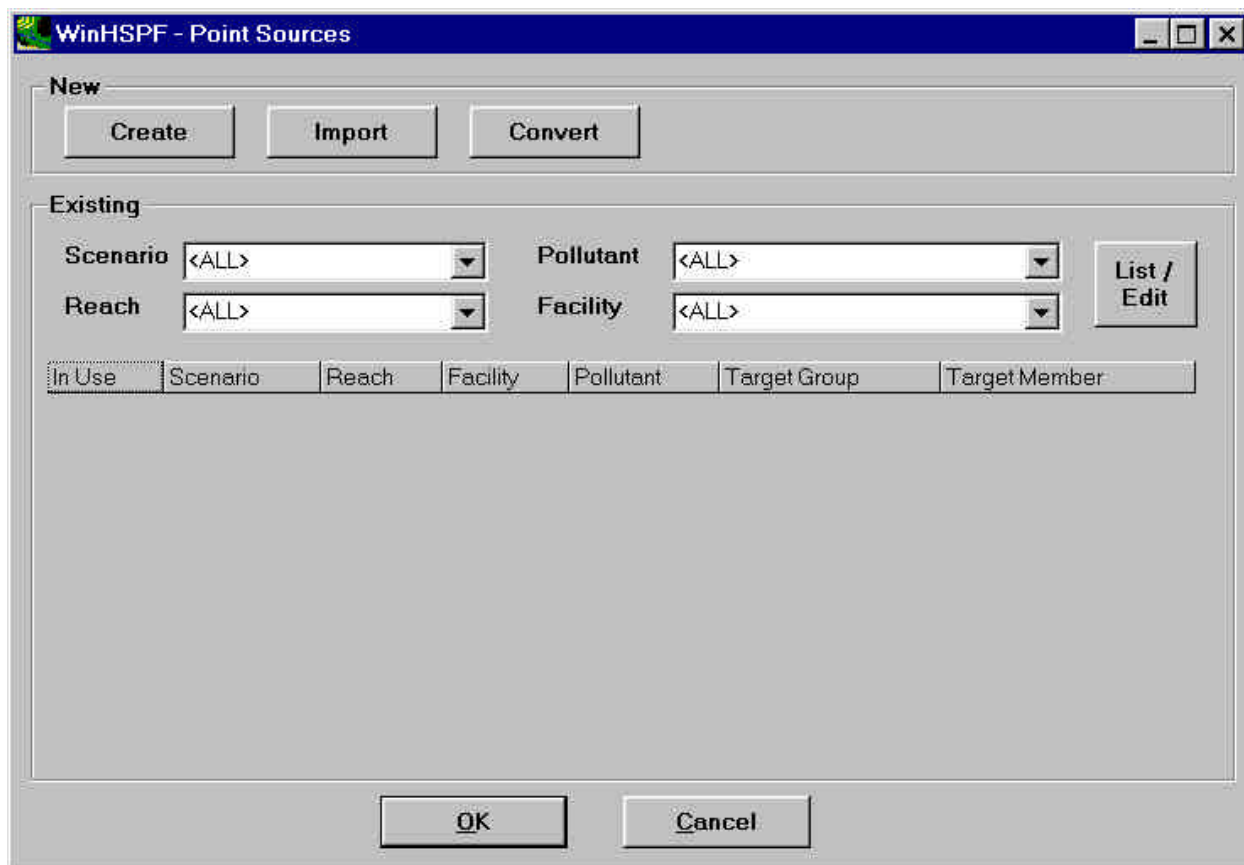
Then the user may click **OK** to exit and save the changes or **Cancel** to exit without saving the changes.



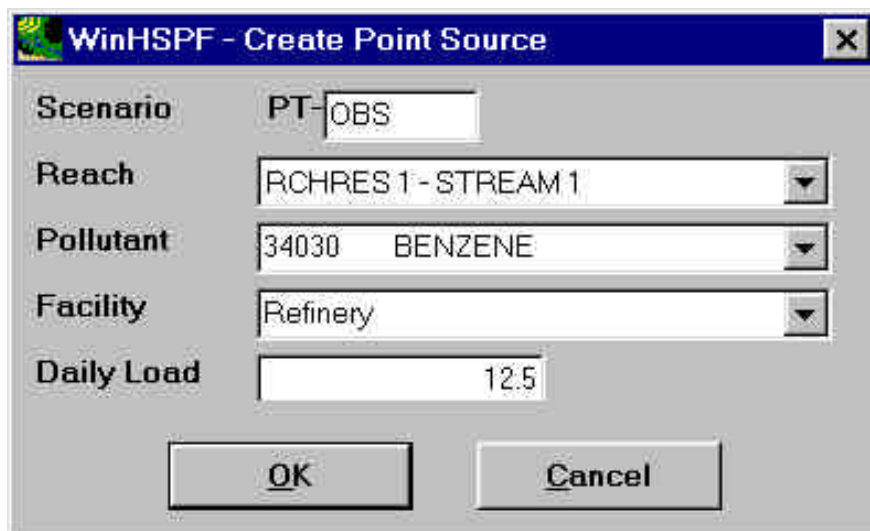
When making sections active, often tables that are not yet present become required by HSPF. If the user has turned some sections on and clicked OK, this editor will give the user the option to automatically add the tables required by the active sections.

Point Sources

The **Point Sources** window is accessed either by selecting the **Point** option from the **Functions** menu or by clicking on the  button on the toolbar. This window is used to view and manage the point sources that may be included in the simulation. When a new project is created, point source data is written to the project WDM file for all point sources and constituents specified in the BASINS point sources file. All of these point source data sets are available through the Point Sources window.



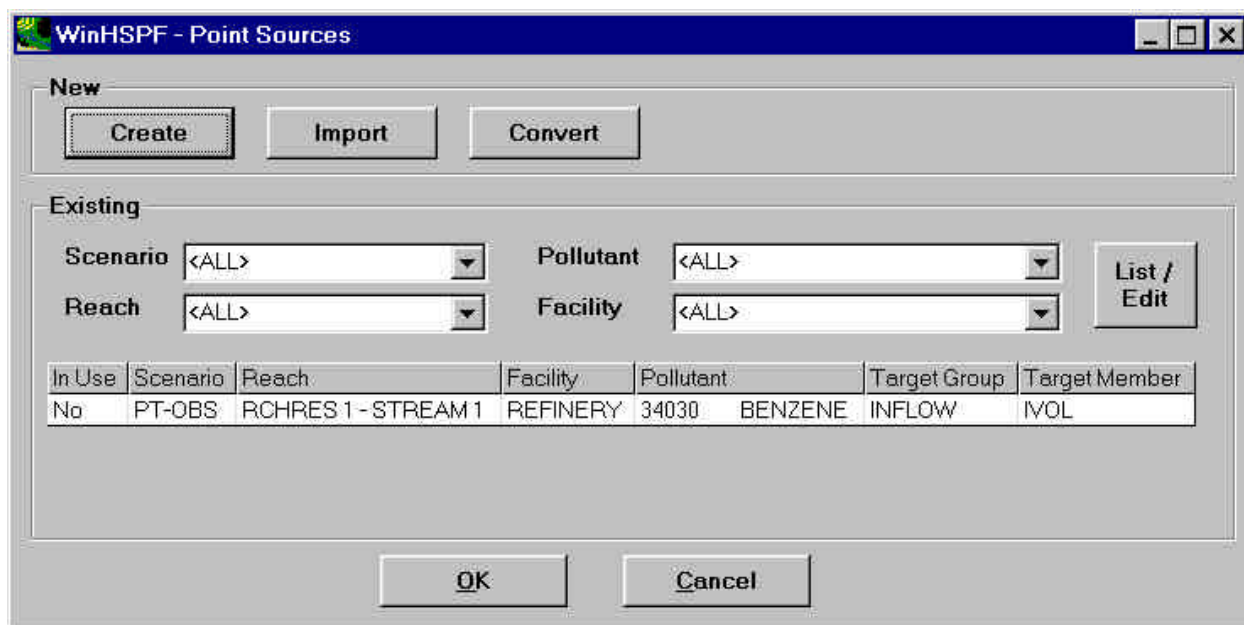
The **New** frame at the top of the window offers three methods for obtaining new point source data. Clicking on the **Create** button displays the **Create Point Source** window. The user types in the extension of the **Scenario** name, selects the **Reach** from its drop-down list box, either types in or selects the **Pollutant** and **Facility** from their respective combo boxes, and types in the **Daily Load**.



The dialog box titled "WinHSPF - Create Point Source" contains the following fields and controls:

- Scenario:** Text input field containing "PT-OBS".
- Reach:** Drop-down menu showing "RCHRES 1 - STREAM 1".
- Pollutant:** Drop-down menu showing "34030 BENZENE".
- Facility:** Drop-down menu showing "Refinery".
- Daily Load:** Text input field containing "12.5".
- Buttons:** "OK" and "Cancel" buttons at the bottom.

Once the values have been entered, click the **OK** button to create the new point source in the project WDM file and return to the main **Point Sources** window. The **Cancel** button may be used to return to this window without creating a new point source.

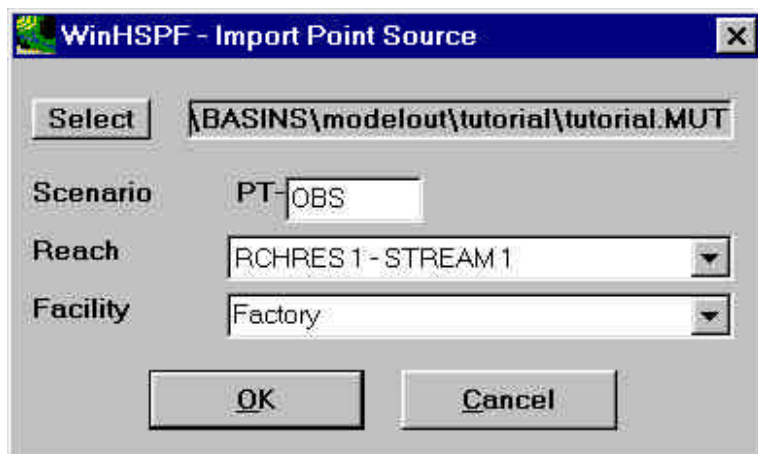


The "WinHSPF - Point Sources" window displays the following sections and controls:

- New:** Contains "Create", "Import", and "Convert" buttons.
- Existing:**
 - Scenario: <ALL>
 - Pollutant: <ALL>
 - Reach: <ALL>
 - Facility: <ALL>
 - List / Edit button
- Table:**

In Use	Scenario	Reach	Facility	Pollutant	Target Group	Target Member
No	PT-OBS	RCHRES 1 - STREAM 1	REFINERY	34030 BENZENE	INFLOW	IVOL
- Buttons:** "OK" and "Cancel" buttons at the bottom.

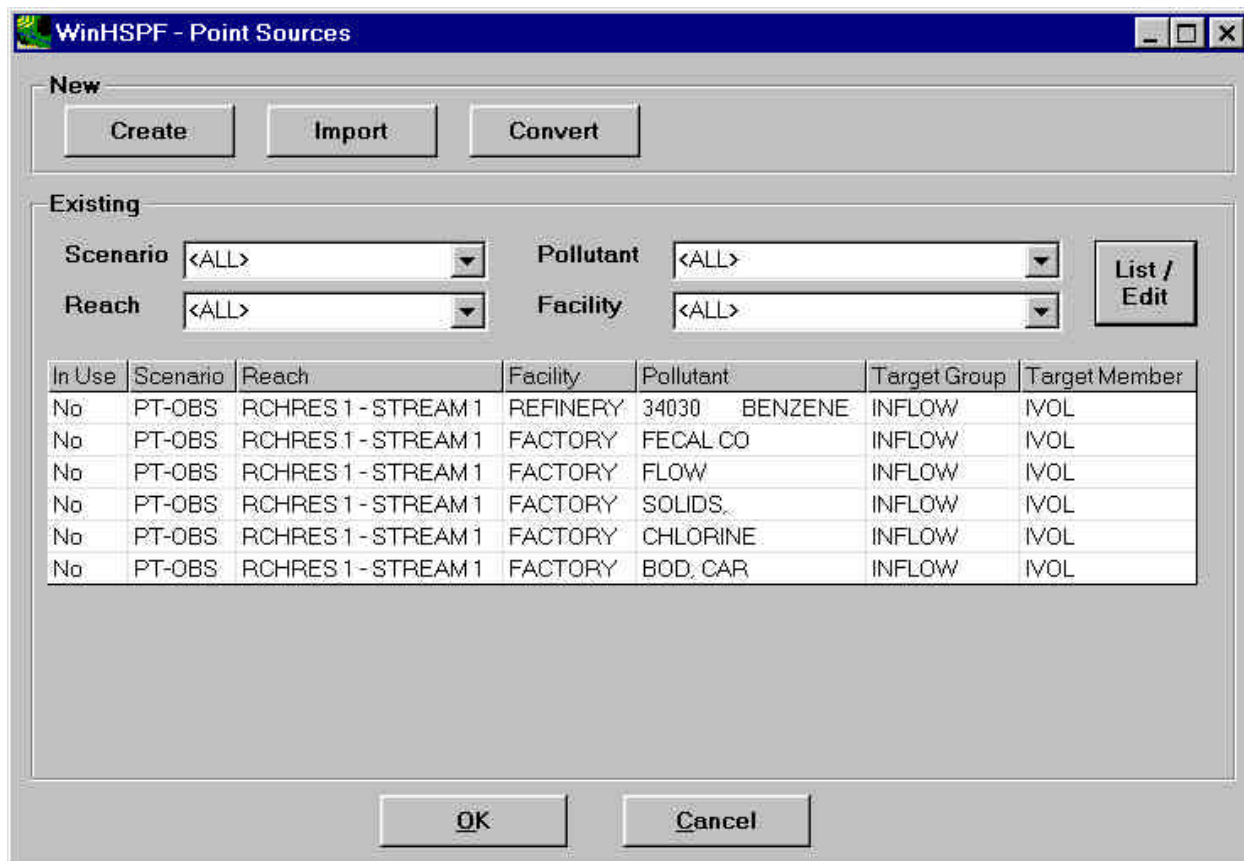
Clicking on the **Import** button displays the **Import Point Source** window. Clicking on the **Select** button allows the user to browse for the MUTSIN (*.mut) file to be imported. MUTSIN files are point source data files created by BASINS versions earlier than 3.0. The user then types in the extension of the **Scenario** name and selects the **Reach** from its drop-down list box. The **Facility** field will automatically be filled in with text from the import file.



The dialog box titled "WinHSPF - Import Point Source" contains the following fields and buttons:

- Select** button next to the file path: `\BASINS\modelout\tutorial\tutorial.MUT`
- Scenario** text box with the value: `PT-OBS`
- Reach** dropdown menu with the value: `RCHRES 1 - STREAM 1`
- Facility** dropdown menu with the value: `Factory`
- OK** and **Cancel** buttons at the bottom.

Once the values have been entered, click the **OK** button to import the new point sources into the project WDM file and return to the main **Point Sources** window. The **Cancel** button may be used to return to this window without importing a point source.



The dialog box titled "WinHSPF - Point Sources" contains the following sections and elements:

- New** section with **Create**, **Import**, and **Convert** buttons.
- Existing** section with filters:
 - Scenario** dropdown: `<ALL>`
 - Pollutant** dropdown: `<ALL>`
 - Reach** dropdown: `<ALL>`
 - Facility** dropdown: `<ALL>`
 - List / Edit** button
- Table** with 7 columns: In-Use, Scenario, Reach, Facility, Pollutant, Target Group, Target Member.

In-Use	Scenario	Reach	Facility	Pollutant	Target Group	Target Member
No	PT-OBS	RCHRES 1 - STREAM 1	REFINERY	34030 BENZENE	INFLOW	IVOL
No	PT-OBS	RCHRES 1 - STREAM 1	FACTORY	FECAL CO	INFLOW	IVOL
No	PT-OBS	RCHRES 1 - STREAM 1	FACTORY	FLOW	INFLOW	IVOL
No	PT-OBS	RCHRES 1 - STREAM 1	FACTORY	SOLIDS	INFLOW	IVOL
No	PT-OBS	RCHRES 1 - STREAM 1	FACTORY	CHLORINE	INFLOW	IVOL
No	PT-OBS	RCHRES 1 - STREAM 1	FACTORY	BOD, CAR	INFLOW	IVOL
- OK** and **Cancel** buttons at the bottom.

Clicking on the **Convert** button scans the HSPF input sequence (the UCI file) and, if this sequence refers to any MUTSIN files, all such files are converted to WDM data sets in the project WDM file.

The **Existing** frame at the bottom of the **Point Sources** window contains a grid displaying the point sources in the project WDM file. The number of point sources displayed in the grid can be restricted by making selections from the **Scenario**, **Reach**, **Pollutant**, and **Facility** drop-down list boxes. For example, if “FLOW” is selected from the **Pollutant** list box then the grid will display only the point sources that have “FLOW” as the **Pollutant**.

The dialog box titled "WinHSPF - Point Sources" has a "New" section with "Create", "Import", and "Convert" buttons. The "Existing" section contains four drop-down menus: "Scenario" (set to "<ALL>"), "Reach" (set to "<ALL>"), "Pollutant" (set to "FLOW"), and "Facility" (set to "<ALL>"). To the right of these is a "List / Edit" button. Below the filters is a table with the following data:

In Use	Scenario	Reach	Facility	Target Group	Target Member
No	PT-OBS	RCHRES 1 - STREAM 1	FACTORY	INFLOW	IVOL

At the bottom are "OK" and "Cancel" buttons.

The ‘In Use’ column is used to specify if that point source is in use in the current simulation. When the user sets a point source to ‘In Use’, that point source is added to the External Sources block. WinHSPF will add the appropriate units conversion in the multiplication factor, provided that the daily data in the WDM data set is in the standard BASINS units (lbs/day all constituents except flow, which is in cfs) and that the time step of the run is in hours. Thus the multiplication factor for flow will convert cfs to acre-feet/hour.

The user may wish to edit values in one of the point source data sets. This may be done by highlighting a field in the row associated with the desired data set then clicking on the **List/Edit** button. The following form will appear:

Timeseries Data	
File Edit	
Scenario	PT-OBS
Location	RCH1
Constituent	34030
1970/01/01 00:00	12.5
1970/01/02 00:00	12.5
1970/01/03 00:00	12.5
1970/01/04 00:00	12.5
1970/01/05 00:00	12.5
1970/01/06 00:00	12.5
1970/01/07 00:00	12.5
1970/01/08 00:00	12.5
1970/01/09 00:00	12.5
1970/01/10 00:00	12.5
1970/01/11 00:00	12.5
1970/01/12 00:00	12.5
1970/01/13 00:00	12.5
1970/01/14 00:00	12.5

Values may be edited by clicking on the desired field and entering a new date or value.

See Lesson 7 of the online tutorial to follow an example of creating, adding, and editing point source data.


Special Note: A user may wish to add point source data sets from formats other than the MUTSIN files included in BASINS. This may be accomplished using the program WDMUtil. When adding a new point source data set, be sure to use the units specified above. In addition, certain conventions should be followed in the WDM attribute naming so that WinHSPF Point Sources tool recognizes these data sets as candidate point source inputs. The details of these conventions follow:

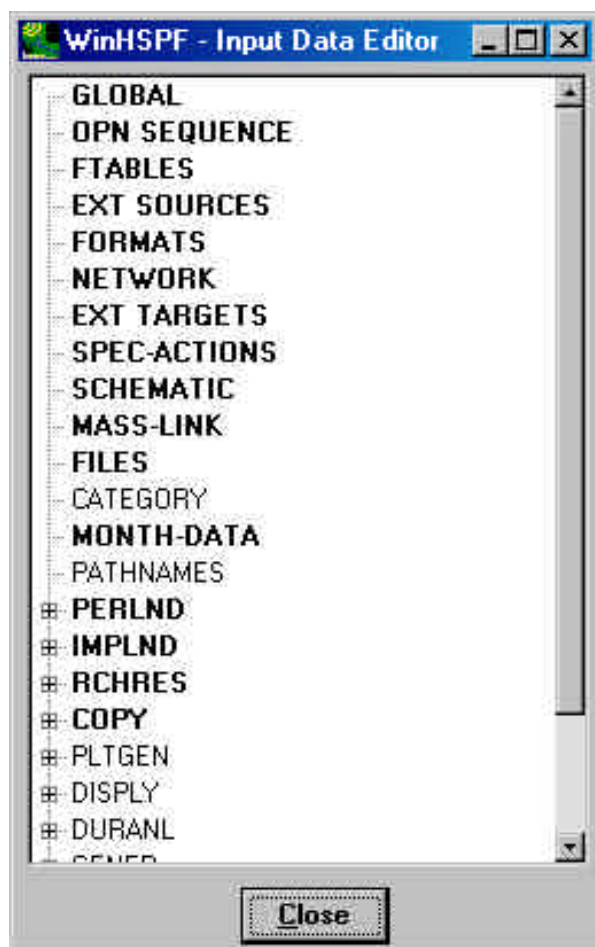
- The scenario id attribute (IDSCEN) must begin with the three characters “PT-“. These names will appear in the Point Sources ‘Scenario’ list.
- The constituent id attribute (IDCONS) must consist of a four-character abbreviation for the pollutant, or the standard five-digit parameter code. These names will appear in the Point Sources ‘Pollutant’ list.
- The time series type attribute (TSTYPE) must consist of a four-character abbreviation for the pollutant. If the constituent is flow, this attribute must be “FLOW”.
- The location id attribute (IDLOCN) must consist of the three characters “RCH” followed by the RCHRES id number of the reach on which this point source resides, such as “RCH9” for a point

source on RCHRES 9 or “RCH10” for a point source on RCHRES 10. These names will appear in the Point Sources ‘Reach’ list.

- The station name attribute (STANAM) will appear as the facility name in WinHSPF. This attribute is optional, but the user might wish to add the facility name for consistency.

Input Data Editor

The Input Data Editor is accessed either by choosing the **Edit** option from the **Functions** menu or by clicking on the **Input Data Editor** button  on the toolbar. The **Input Data Editor** window contains a tree diagram of the blocks and tables of HSPF. The tree diagram is navigated by clicking on an item name. Double-clicking on an item name reveals the subitems within that item, if any exist.



Double-clicking on a block or table name produces another window containing a grid for editing the parameters of that block or table.

Edit PERLND:PWAT-PARM2

☒ Show Description

OpNum	Description	FOREST	LZSN	INFILT	LSUR	SLSUR	KVARY	AGWRC
101	Forest Land	1	13.1	0.16	300	0.0456	0	0.98
102	Agricultural Land	1	6	0.16	300	0.0456	0	0.98
103	Urban or Built-up La	0	6	0.16	300	0.0456	0	0.98
104	Borren Land	0	6	0.16	300	0.0456	0	0.98
105	Water	0	6	0.16	300	0.0456	0	0.98

Table: PWAT-PARM2, Second group of PWATER Parameters.
 Parameter: AGWRC is the basic groundwater recession rate if KVARY is zero and there is no inflow to groundwater (rate of flow today/rate yesterday).

```


*** < PLS>  FOREST    LZSN    INFILT    LSUR    SLSUR    KVARY    AGWRC
*** x  - x      (in)    (in/hr)   (ft)      (1/in)   (1/day)
  
```

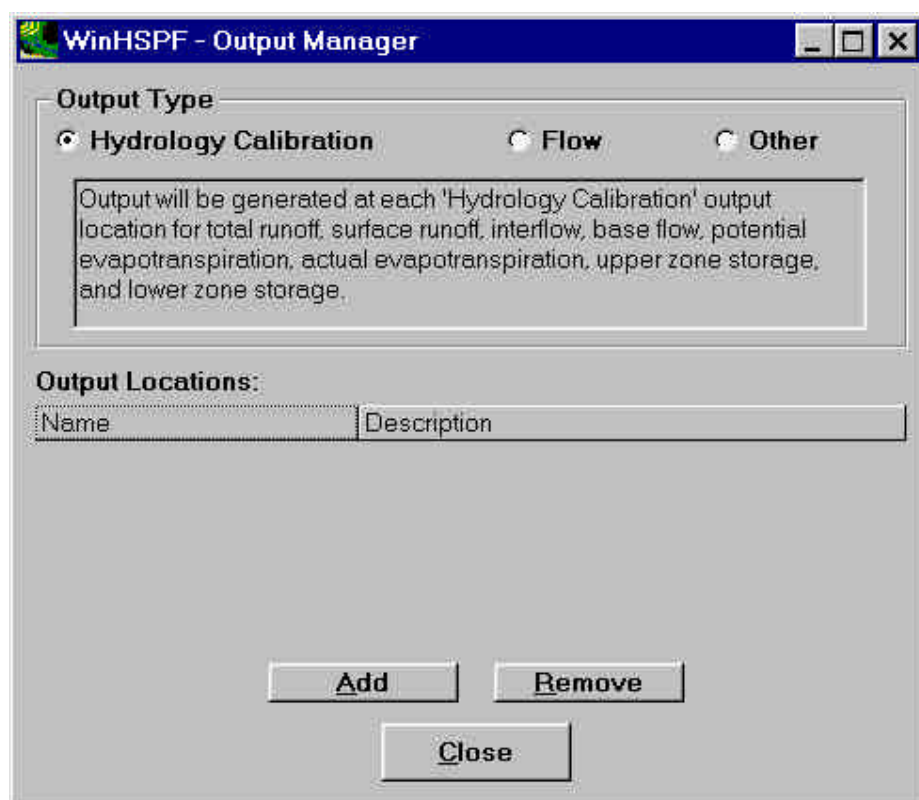
OK Cancel Apply Help

Note that the grid columns may be sorted by clicking on the column heading. The blocks of HSPF may also be accessed for editing using the **Edit** menu.

If the user has selected the name of a table that does not yet exist from the tree diagram, a message will appear asking if the user would like to add that table. The input data editor will also automatically add tables that become required through the changes made to the HSPF tables.

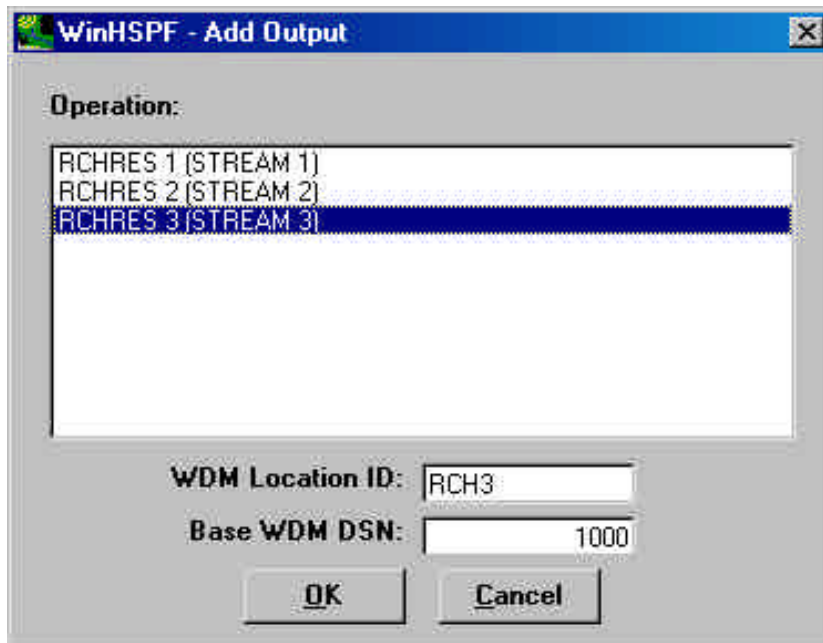
Output Manager

The **Output Manager** is accessed either by choosing the **Functions:Output** menu option or by clicking the  icon on the toolbar. The Output Manager window will appear containing a set of radio buttons and a list of output locations. The radio buttons are used to specify which of the three types of output to view. Clicking on one of the radio buttons produces a list of locations where that output has been specified.

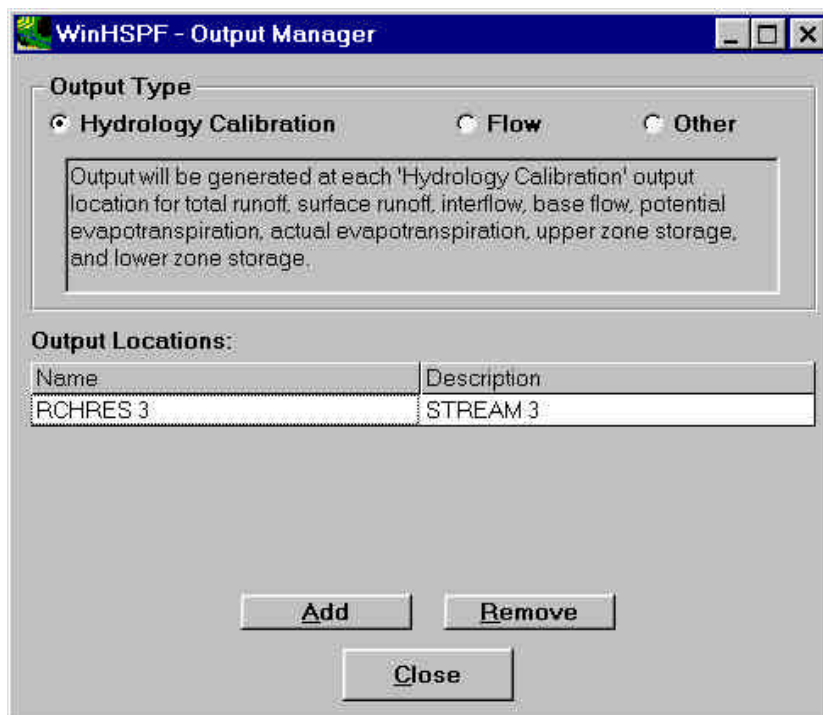


The first output type is Hydrology Calibration. This button will already be selected when entering the Output Manager. With this button selected, the list below the radio buttons displays the HSPF calibration locations within the current HSPF project. Underneath the radio buttons is a text box explaining which output timeseries will be generated during the HSPF model run.

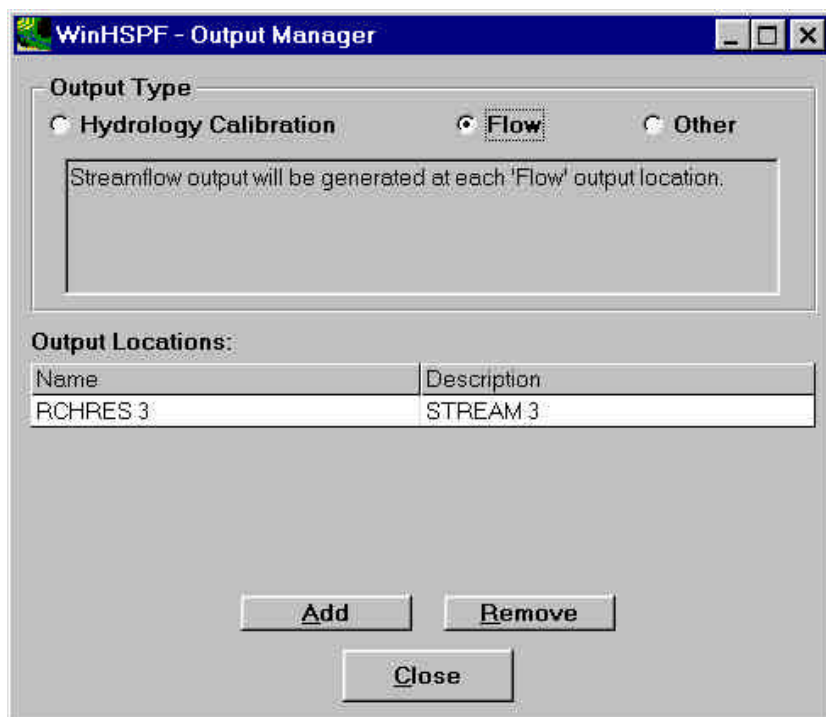
Adding calibration locations to this list is accomplished by clicking on the **Add** button. Clicking on this button produces another window. This window contains a list of available calibration locations, i.e. the reaches of the watershed, along with two text fields. The user must choose one of the calibration locations, then enter an eight character identifier for that location. This identifier is used as the location id attribute on the WDM time-series data sets that will be created. The user is also asked to enter a base data set number for the data sets to be created. The new data sets will be numbered as the available data sets following that number.



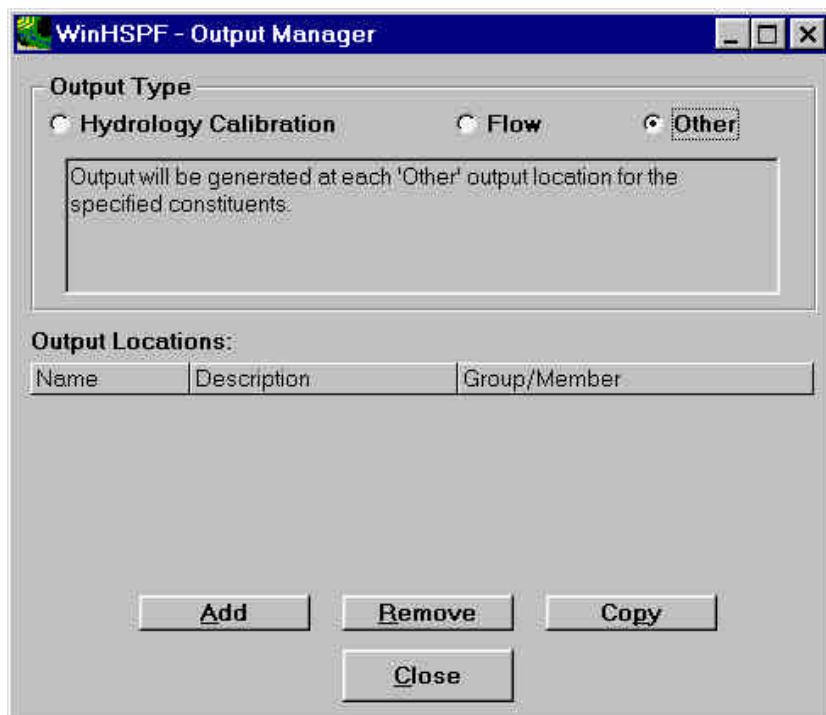
Clicking **OK** from this window brings the user back to the **Output Manager** window. As the user returns to the **Output Manager** window, eight new time-series data sets are created in the project WDM file, as required by the program HSPEXP. The UCI in memory is modified to include the appropriate Copy operation as well as the appropriate External Targets, Schematic, and Mass-Link Blocks.



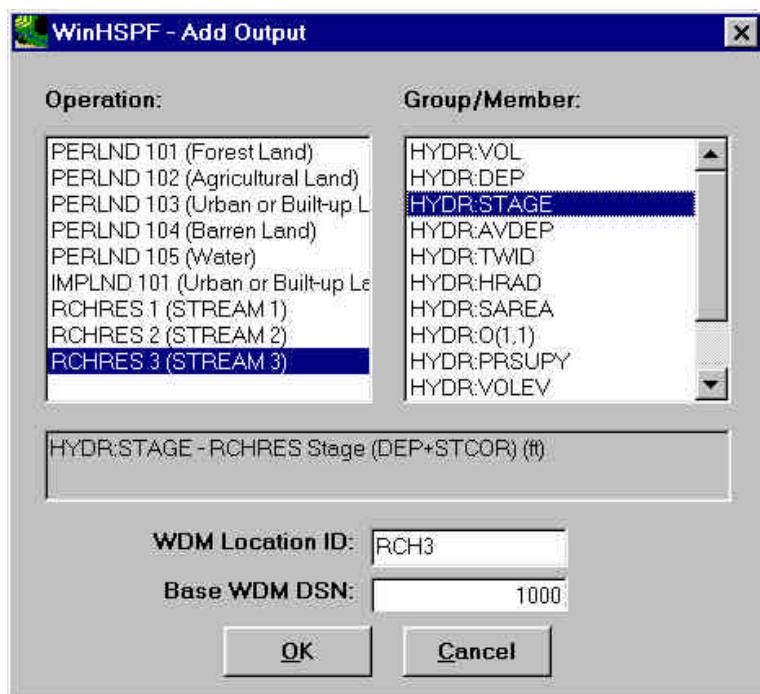
Clicking the **Flow** radio button produces a list of locations at which Flow is output. Flow output can be added by means similar to those used to add a calibration location.



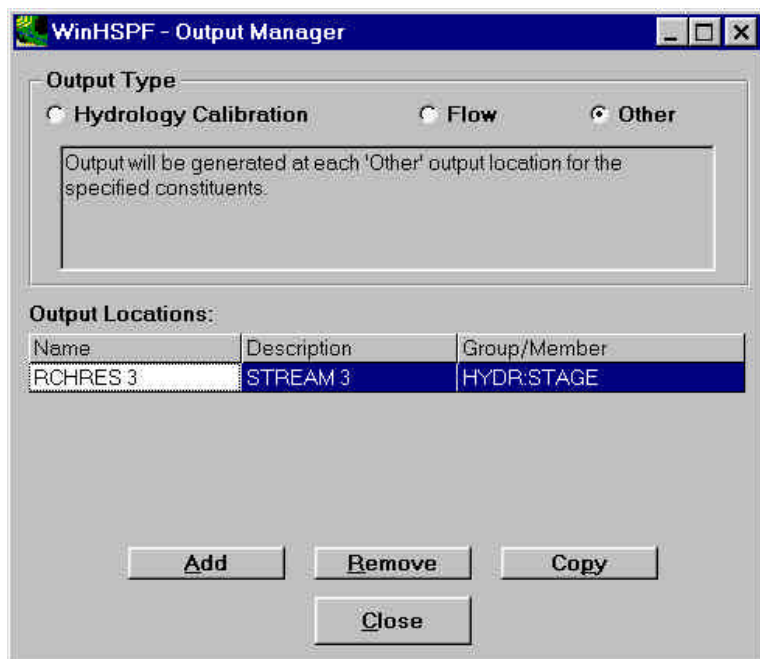
The **Other** radio button is used to view a list of other outputs.



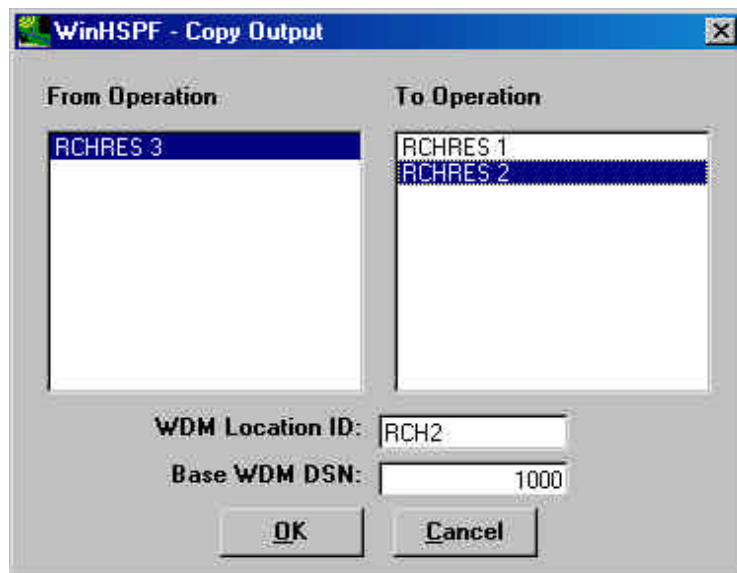
With the **Other** radio button selected, the **Add** button may be used to add additional outputs from this simulation. When the **Add** button is clicked, a window is produced containing a list of model segments.



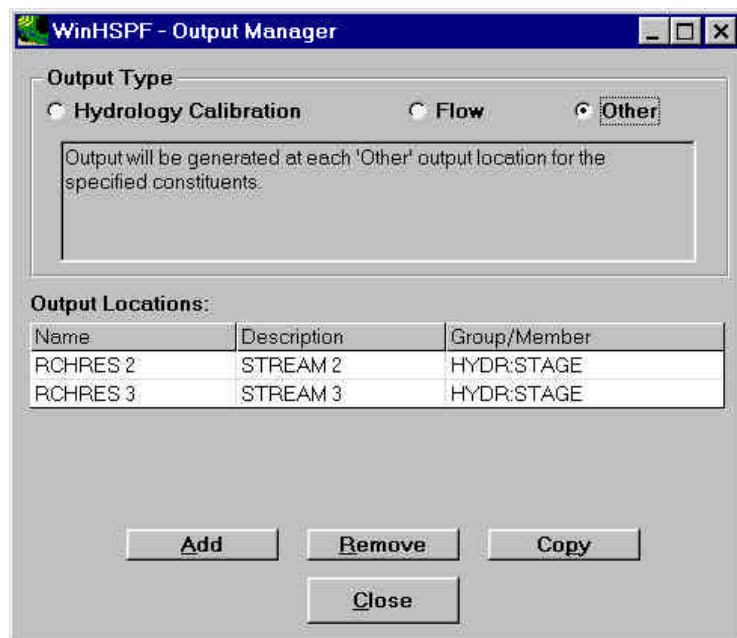
Choosing one of the model segments causes a list of Group and Members to appear. This list contains all valid Group and Member pairs that can be output from this operation given the current active sections of this operation. When the user chooses one Group/Member pair and then clicks **OK**, this output specification is added.



Copy is used to copy output specifications from one model segment to another. When **Copy** is clicked, a window appears containing a list of operations with output specified.



Choosing one operation from the 'From' list and one operation from the 'To' list specifies that all output specifications from the one operation will be copied to the other.

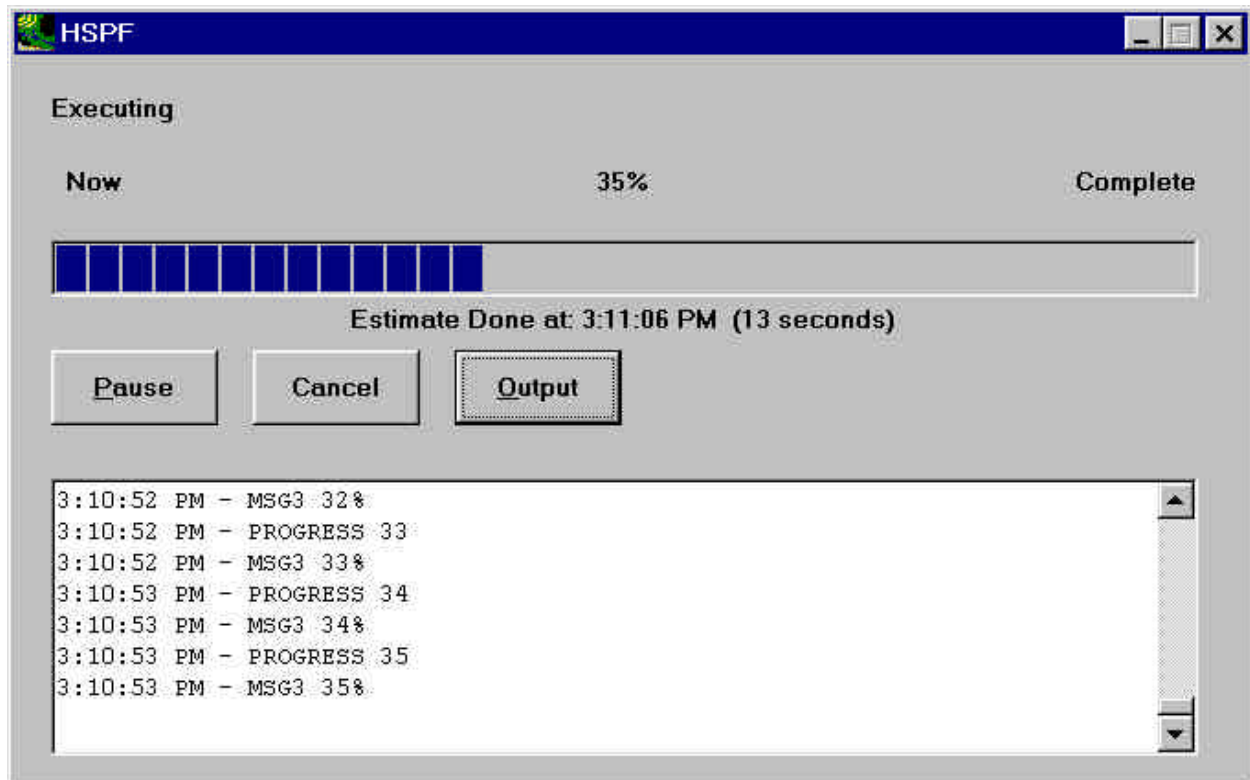


The **Remove** button is used to remove an output specification from the list.


Another option for managing output specifications is by using the **Edit:Ext Targets** menu option. Through the External Targets block editor, the user may add, delete, or modify external targets entries. In adding entries, WinHSPF automatically creates new WDM data sets as specified by the user.

Run HSPF

The **Run HSPF** button on the toolbar is used to perform the HSPF simulation, i.e. run hspf. Clicking this button produces a status window that keeps the user updated as to the state of the run. This window disappears when the run is complete. The **Output** button enlarges the window to display a log of all messages sent to the status window during the HSPF execution.



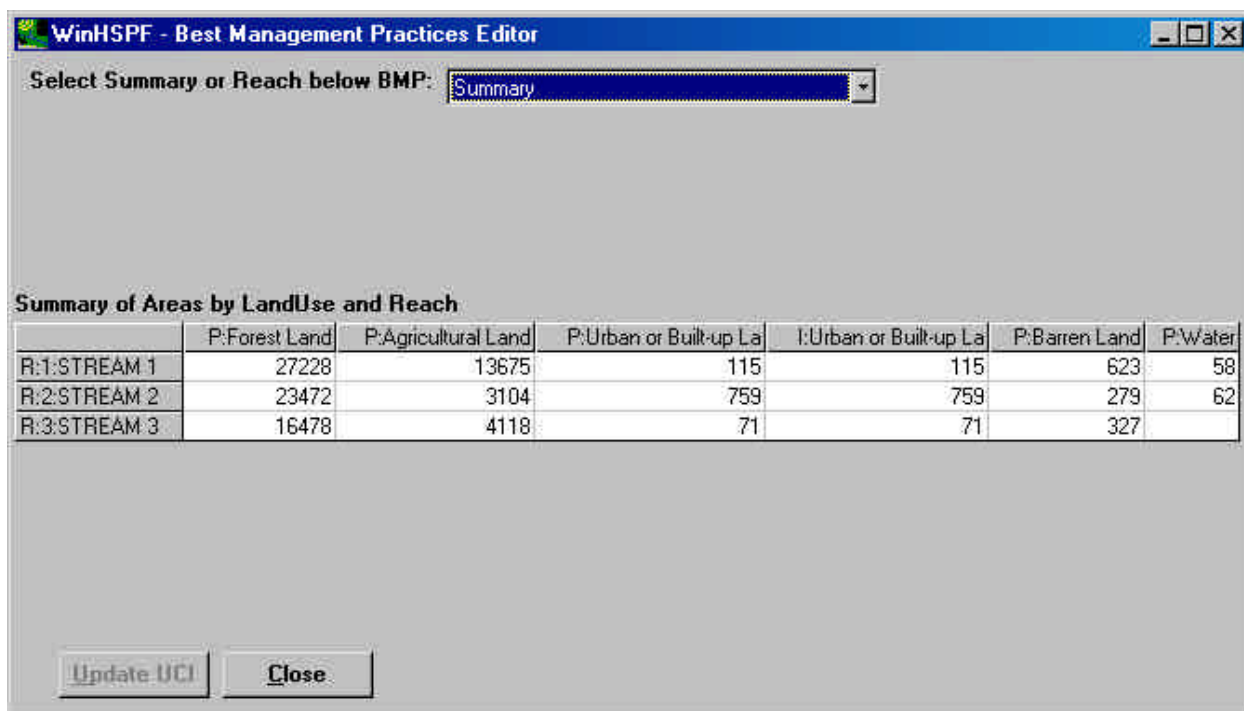
View Output

The **View Output** button  on the toolbar is used to start the program GenScn for viewing timeseries output. GenScn is documented separately.

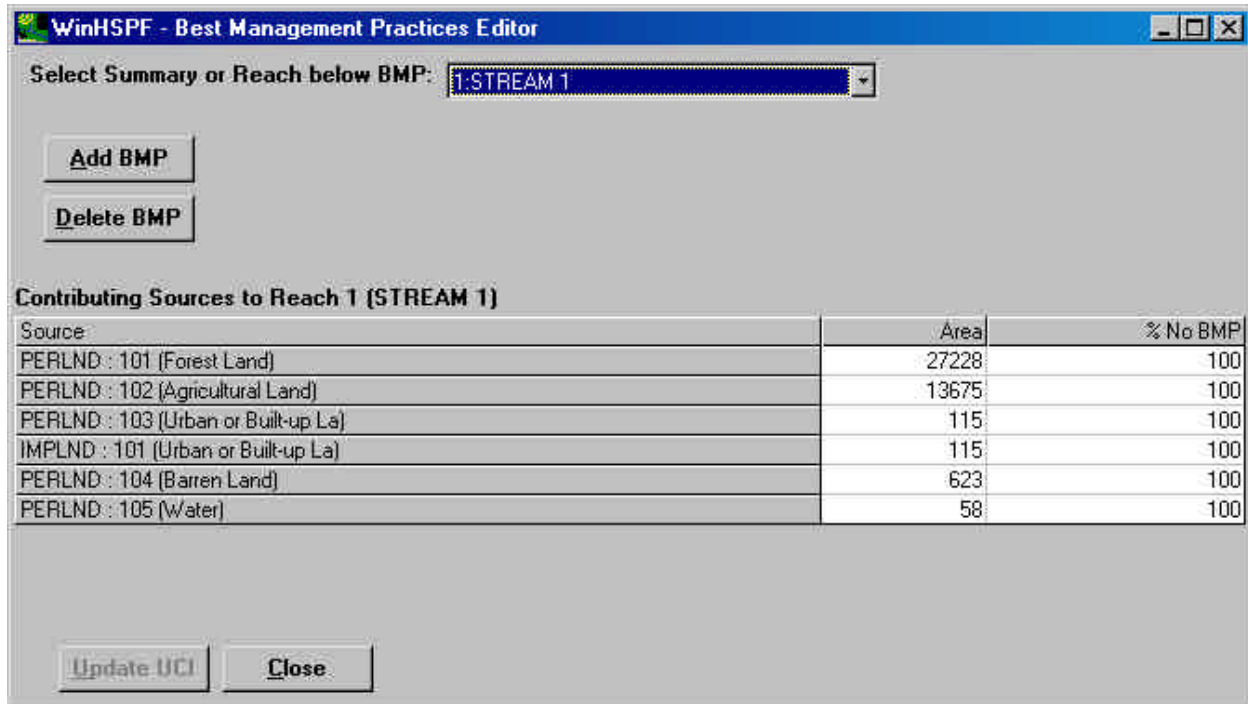
Best Management Practices Editor

The Best Management Practices Editor is an advanced feature for assisting users in adding BMPs to a simulation. This feature may be used as an alternative to the method outlined in Lesson 6: Modeling a Watershed Management Practice. The BMP Editor is accessed by choosing the BMP option from the Functions menu.

The BMP window appears with a summary table illustrating the areas of each land use contributing to each reach. This table is provided as a convenience for the user, but areas in this table are not editable.



When a reach is selected from the list at the top of the BMP window, the table changes to show the percentage of land area from each land segment under each BMP, as well as the area not under any BMP.



WinHSPF - Best Management Practices Editor

Select Summary or Reach below BMP: 1:STREAM 1

Add BMP

Delete BMP

Contributing Sources to Reach 1 (STREAM 1)

Source	Area	% No BMP
PERLND : 101 (Forest Land)	27228	100
PERLND : 102 (Agricultural Land)	13675	100
PERLND : 103 (Urban or Built-up La)	115	100
IMPLND : 101 (Urban or Built-up La)	115	100
PERLND : 104 (Barren Land)	623	100
PERLND : 105 (Water)	58	100

Update UCI Close

If any BMPs exist for this reach, the percentages in this table can be modified by editing the grid. The 'Add' button adds a BMP for the active reach, and the 'Delete' button removes a BMP for the active reach. When any change has been made, the 'Update UCI' button becomes available. Clicking this button makes the corresponding change in the UCI in memory. The change is not actually made in the UCI file on disk until the user chooses 'save' or 'save as' in the main WinHSPF window.

With a cell selected in a BMP column of the grid (if one has been added), the 'Edit Removal Efficiency' button may be clicked to edit the removal efficiencies for that BMP.

WinHSPF - Best Management Practices Editor

Select Summary or Reach below BMP: 1:STREAM 1

Current BMP Details:

ID: Edit Removal Efficiency

Description:

Contributing Sources to Reach 1 (STREAM 1)

Source	Area	% No BMP	% BMP 1
PERLND : 101 (Forest Land)	27228	100	0
PERLND : 102 (Agricultural Land)	13675	100	0
PERLND : 103 (Urban or Built-up La)	115	50	50
IMPLND : 101 (Urban or Built-up La)	115	50	50
PERLND : 104 (Barren Land)	623	100	0
PERLND : 105 (Water)	58	100	0

Update UCI Close

A database of commonly used BMPs is accessible from the BMP Editor for consultation in choosing appropriate removal rates. Clicking a cell of the 'DB Range' column produces a reference or other comments pertaining to that particular BMP in the text box above the grid.

WinHSPF - Best Management Practices Efficiency Editor

BMP Name: BMP Operation #1

Reference: Dry detention basin efficiencies are based on a storage capacity of the detention pool sized to achieve the design detention time for 80% to 90% of the annual runoff volume. For most areas of the U.S., dry detention basin efficiencies are based on a storage volume of at least 0.5 to 1.0 inches per impervious acre.

Removal Fractions

Constituent	Fraction	DB Range	Reference
Water	0	<not available>	
Heat	0	<not available>	
Sediment:Sand	0	80%-90%	1
Sediment:Silt	0	80%-90%	1
Sediment:Clay	0	80%-90%	1
Fecal Coliforms:Solution	0	<not available>	
Fecal Coliforms:Sand Assoc.	0	<not available>	
Fecal Coliforms:Silt Assoc.	0	<not available>	
Fecal Coliforms:Clay Assoc.	0	<not available>	
Dissolved Oxygen	0	<not available>	
BOD	0	20%-30%	1
NO3:Solution	0	<not available>	
TAM:Solution	0	<not available>	
NO2:Solution	0	<not available>	
PO4:Solution	0	<not available>	
NH4:Sand Adsorbed	0	<not available>	
NH4:Silt Adsorbed	0	<not available>	
NH4:Clay Adsorbed	0	<not available>	
PO4:Sand Adsorbed	0	<not available>	
PO4:Silt Adsorbed	0	<not available>	

The values of the 'Fraction' column may be edited to reflect the removal rates for the BMP. Once complete, the **Update UCI** button may be clicked to record the changes. The **Close** button returns the user to the main BMP Editor window.

Special Note: The BMP Editor adds connections to the Mass-Link and Schematic Blocks of the UCI file. If a Mass-Link already exists containing BMP to RCHRES connections, that Mass-Link will be used for a new BMP added through this editor. If such a Mass-Link does not exist, WinHSPF will automatically build that Mass-Link, pulling default values from the PERLND/IMPLND to RCHRES Mass-Link. When using the BMP Editor, care should be taken to make sure that the Mass-Link connections used by default are appropriate for the current simulation.